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DEPARTMENT OF ENERGY

10 CFR Part 851

[AU-RM-16-WSHP]

RIN 1992-AA55

Worker Safety and Health Program

AGENCY: Office of Environment, Health, Safety and Security, U.S. Department of Energy.

ACTION: Final rule; technical amendment.

SUMMARY: The Department of Energy (DOE) is amending the worker safety and health program regulations to update the safety and health standards and delete the obsolete directives currently incorporated by reference in the code of federal regulations. The regulatory amendments do not alter substantive rights or obligations under current law.

DATES: This rulemaking is effective January 17, 2018. The incorporation by reference of certain publications listed in this rulemaking is approved by the Director of the *Federal Register* on January 17, 2018. Compliance is required starting January 17, 2019.

FOR FURTHER INFORMATION CONTACT:

Bill McArthur, U.S. Department of Energy, Office of Environment, Health, Safety and Security, AU-11, 1000 Independence Avenue, SW, Washington, DC 20585. Telephone: (301) 903-6061. E-mail: bill.mcarthur@hq.doe.gov.

Daniel Cohen, U.S. Department of Energy, Office of the General Counsel, GC-33, 1000 Independence Avenue, SW, Washington, DC, 20585. Telephone: (202) 586-9523. Email: daniel.cohen@hq.doe.gov.

SUPPLEMENTARY INFORMATION: This final rule incorporates by reference into part 851 complete and specific sections of the following industry safety and health standards:

1. American Conference of Governmental Industrial Hygienists (ACGIH®), *Threshold Limit Values for Chemical Substances and Physical Agents and Biological Exposure Indices*, (2016).

A copy of the ACGIH® Threshold Limit Values for Chemical Substances and Physical Agents and Biological Exposure Indices, (2016) can be obtained from: ACGIH®, 1330 Kemper Meadow Drive, Cincinnati, OH 45240. Telephone number 513-742-2020, or go to: <http://www.acgih.org>.

2. ANSI Z49.1-2012, *American National Standard Safety in Welding, Cutting and Allied Processes*, sections 4.3 and E4.3, ANSI approved March 9, 2012.

3. ANSI/ASSE Z88.2-2015, *American National Standard Practices for Respiratory Protection*, ANSI approved March 4, 2015.

4. ANSI Z136.1-2014, *American National Standard for Safe Use of Lasers*, ANSI approved December 10, 2013.

Copies of ANSI Z49.1-2012 , Z88.2-2015, and ANSI Z136.1-2014 can be obtained from the American National Standards Institute Headquarters, 1899 L Street, NW, 11th Floor, Washington, DC 20036. Telephone number: 202-293-8020, or go to: <http://www.ansi.org>

5. The American Society of Mechanical Engineers (ASME) *Boiler and Pressure Vessel Code (BPVC)*-2015, 2015 edition, issued July 1, 2015.

(a) ASME BPVC.I-2015, *Section I-Rules for Construction of Power Boilers*;

(b) ASME BPVC.II.A-2015, *Section II-Materials, Part A-Ferrous Material Specifications (Beginning to SA-450)*;

(c) ASME BPVC.II.A-2015, *Section II-Materials, Part A-Ferrous Material Specifications (SA-451 to End)*;

(d) ASME BPVC.II.B-2015, *Section II-Materials, Part B-Nonferrous Material Specifications*;

(e) ASME BPVC.II.C-2015, *Section II-Materials, Part C-Specification for Welding Rods, Electrodes, and Filler Metals*;

(f) ASME BPVC.II.D.C-2015, *Section II-Materials, Part D-Properties (Customary)*;

(g) ASME BPVC.II.D.M-2015, *Section II-Materials, Part D- Properties (Metric)*;

(h) ASME BPVC.III.A-2015, *Section III-Rules for Construction of Nuclear Facility Components, Appendices*;

(i) ASME BPVC.III.1.NB-2015, *Section III-Rules for Construction of Nuclear Facility Components, Division I—Subsection NB, Class 1 Components*;

(j) ASME BPVC.III.1.NC-2015, *Section III-Rules for Construction of Nuclear Facility Components, Division I—Subsection NC, Class 2 Components*;

(k) ASME BPVC.III.1.ND-2015, *Section III-Rules for Construction of Nuclear Facility Components, Division I—Subsection ND, Class 3 Components*;

(l) ASME BPVC.III.1.NE-2015, *Section III-Rules for Construction of Nuclear Facility Components, Division I—Subsection NE, Class MC Components*;

(m) ASME BPVC.III.1.NF-2015, *Section III-Rules for Construction of Nuclear Facility Components, Division I—Subsection NF, Supports*;

(n) ASME BPVC.III.1.NG-2015, *Section III-Rules for Construction of Nuclear Facility Components, Division I—Subsection NG, Core Support Structures*;

(o) ASME BPVC.III.1.NH-2015, *Section III-Rules for Construction of Nuclear Facility Components, Division I—Subsection NH, Class 1 Components in Elevated Temperature Service*;

(p) ASME BPVC.III.NCA-2015, *Section III-Rules for Construction of Nuclear Facility Components, Subsection NCA, General Requirements for Division 1 and Division 2;*

(q) ASME BPVC.III.2-2015, *Section III-Rules for Construction of Nuclear Facility Components, Division 2, Code for Concrete Containments;*

(r) ASME BPVC.III.3-2015, *Section III-Rules for Construction of Nuclear Facility Components, Division 3, Containment for Transportation and Storage of Spent Nuclear Fuels and High Level Radioactive Material and Waste;*

(s) ASME BPVC.III.5-2015, *Section III-Rules for Construction of Nuclear Facility Components, Division 5, High Temperature Reactors;*

(t) ASME BPVC.IV-2015, *Section IV, Rules for Construction of Heating Boilers;*

(u) ASME BPVC.V-2015, *Section V, Nondestructive Examination;*

(v) ASME BPVC.VI-2015, *Section VI, Recommended Rules for the Care and Operation of Heating Boilers;*

(w) ASME BPVC.VII-2015, *Section VII, Recommended Guidelines for the Care of Power Boilers;*

(x) ASME BPVC.VIII.1-2015, *Section VIII-Rules for Construction of Pressure Vessels, Division 1*;

(y) ASME BPVC.VIII.2-2015, *Section VIII-Rules for Construction of Pressure Vessels, Division 2, Alternative Rules*;

(z) ASME BPVC.VIII.3-2015, *Section VIII-Rules for Construction of Pressure Vessels, Division 3, Alternative Rules for Construction of High Pressure Vessels*;

(aa) ASME BPVC.IX-2015, *Section IX-Welding, Brazing and Fusing Qualifications, Qualification Standard for Welding, Brazing, and Fusing Procedures; Welders; Brazers; and Welding, Brazing, and Fusing Operators*;

(bb) ASME BPVC.X-2015, *Section X, Fiber-Reinforced Plastic Pressure Vessels*;

(cc) ASME BPVC.XI-2015, *Section XI, Rules for Inservice Inspection of Nuclear Power Plant Components*;

(dd) ASME BPVC.XII-2015, *Section XII, Rules for Construction and Continued Service of Transport Tanks*;

(ee) ASME BPVC.CC.BPV-2015, *Code Cases, Boilers and Pressure Vessels*; and

(ff) ASME BPVC.CC.NC-2015, *Code Cases, Nuclear Components*.

6. ASME B31.1–2016, *Power Piping, ASME Code for Pressure Piping, B31*, issued June 30, 2016.

7. ASME B31.3–2014, *Process Piping, ASME Code for Pressure Piping, B31*, issued February 27, 2015.

8. ASME B31.4–2016, *Pipeline Transportation Systems for Liquids and Slurries, ASME Code for Pressure Piping, B31*, issued March 31, 2016.

9. ASME B31.5–2016, *Refrigeration Piping and Heat Transfer Components, ASME Code for Pressure Piping, B31*, issued June 29, 2016.

10. ASME B31.8-2016, *Gas Transmission and Distribution Piping Systems, ASME Code for Pressure Piping, B31*, issued September 30, 2014.

11. ASME B31.8S-2014, *Managing System Integrity of Gas Pipelines, ASME Code for Pressure Piping, B31, Supplement to ASME B31.8*, issued September 30, 2014.

12. ASME B31.9-2014, *Building Services Piping, ASME Code for Pressure Piping, B31*, issued April 28, 2014.

13. ASME B31G-2012, *Manual for Determining the Remaining Strength of Corroded Pipelines, Supplement to ASME B31 Code for Pressure Piping*, issued October 24, 2012.

Copies of ASME BPVC-2015, BPVC.I-2015, BPVC.II.A-2015, BPVC.II.B-2015, BPVC.II.C-2015, BPVC.II.D.C-2015, BPVC.II.D.M-2015, BPVC.III.A-2015, BPVC.III.1.NB-2015, BPVC.III.1.NC-2015, BPVC.III.1.ND-2015, BPVC.III.1.NE-2015, BPVC.III.1.NF-2015, BPVC.III.1.NG-2015, BPVC.III.1.NH-2015, BPVC.III.NCA-2015, BPVC.III.2-2015, BPVC.III.3-2015, BPVC.III.5-2015, BPVC.IV-2015, BPVC.V-2015, BPVC.VI-2015, BPVC.VII-2015, BPVC.VIII.1-2015, BPVC.VIII.2-2015, BPVC.VIII.3-2015, BPVC.IX-2015, BPVC.X-2015, BPVC.XI-2015, BPVC.XII-2015, BPVC.CC.BPV-2015, BPVC.CC.NC-2015, B31.1-2016, B31.3-2016, B31.4-2016, B31.5-2016, B31.8-2016, B31.8S-2014, B31.9-2014 and B31G-2012 can be obtained from: American Society of Mechanical Engineers (ASME), P.O. Box 2300 Fairfield, NJ 07007. Telephone: 800-843-2763, or got to: <http://www.asme.org>.

14. National Fire Protection Association (NFPA) 70, *National Electric Code*, (2017), issued August 4, 2016.

15. NFPA 70E, *Standard for Electrical Safety in the Workplace*, (2015 edition), July 14, 2014.

Copies of NFPA 70 (2017) and 70E (2015) can be obtained from: National Fire Protection Association, One Batterymarch Park, Quincy, MA 02169. Telephone: 617 770-3000, or go to: <http://www.nfpa.org>.

For a further discussion of these standards, see section II.

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I. Authority and Background

A. Authority

DOE has broad authority to regulate worker safety and health with respect to its nuclear and nonnuclear functions pursuant to the Atomic Energy Act of 1954 (AEA), 42 U.S.C. 2011 *et seq.*; the Energy Reorganization Act of 1974 (ERA), 42 U.S.C. 5801-5911; and the Department of Energy Organization Act (DOEOA), 42 U.S.C. 7101-7352. Specifically, the AEA authorized and directed the Atomic Energy Commission (AEC) to protect health and promote safety during

the performance of activities under the AEA. See Sec. 31a.(5) of AEA, 42 U.S.C. 2051(a)(5); Sec. 161b. of AEA, 42 U.S.C. 2201(b); Sec. 161i.(3) of AEA, 42 U.S.C. 2201(i)(3); and Sec. 161p. of AEA, 42 U.S.C. 2201(p). The ERA abolished the AEC and replaced it with the Nuclear Regulatory Commission (NRC), which became responsible for the licensing of commercial nuclear activities, and the Energy Research and Development Administration (ERDA), which became responsible for the other functions of the AEC under the AEA, as well as several nonnuclear functions. The ERA authorized ERDA to use the regulatory authority under the AEA to carry out its nuclear and nonnuclear function, including those functions that might become vested in ERDA in the future. See Sec. 105(a) of ERA, 42 U.S.C. 5815(a); and Sec. 107 of ERA, 42 U.S.C. 5817. The DOEEOA transferred the functions and authorities of ERDA to DOE. See Sec. 301(a) of DOEEOA, 42 U.S.C. 7151(a); Sec. 641 of DOEEOA, 42 U.S.C. 7251; and Sec. 644 of DOEEOA, 42 U.S.C. 7254.

B. Background.

On February 9, 2006 (71 FR 6858), when DOE promulgated 10 CFR part 851, *Worker Safety and Health Program*, it adopted several industry standards to establish the baseline technical safety and health requirements for DOE workplace operations. These standards were already required by DOE Order 440.1A, *Worker Protection Management for DOE Federal and Contractor Employees*, which established a comprehensive worker protection program that provided the basic framework necessary for contractors to ensure the safety and health of their workforce.

In this final rule, DOE replaces the existing references to industry safety and health standards with direct references to the latest versions of the appropriate standards. Directly referencing the

latest industry standards will allow DOE to adopt current best practices and procedures in safety and health.

II. Description of Materials Incorporated by Reference

DOE incorporates by reference the threshold limit values (TLVs[®]) for chemical substances and physical agents and biological exposure indices (BEIs[®]) published by the American Conference of Governmental Industrial Hygienists (ACGIH[®]) titled “Threshold Limit Values for Chemical Substances and Physical Agents and Biological Exposure Indices,” (2016). The TLVs[®] and BEIs[®] are industry accepted values that are intended for use by industrial hygienists in making decisions regarding safe levels of exposure to various chemical and physical agents found in the workplace. Each year ACGIH[®] publishes its TLVs[®] and BEIs[®]. Copies of the ACGIH[®] TLVs[®] and BEIs[®] are readily available on ACGIH[®]’s website at: <http://www.acgih.org>.

DOE incorporates by reference the following industry standards published by the American National Standards Institute (ANSI):

ANSI Z49.1-2012, Safety in Welding, Cutting and Allied Processes, sections 4.3 and E4.3. ANSI Z49.1-2012 provides guidance for the protection of persons from injury and illness and the protection of property (including equipment) from damage by fire and explosions arising from welding, cutting, and allied processes. Copies of ANSI Z49.1-2012 is readily available on ANSI’s website at: <http://www.ansi.org>.

ANSI Z88.2-2015, American National Standard Practices for Respiratory Protection. ANSI Z88.2-2015 is an industry accepted standard that sets forth minimally accepted practices for occupational respirator use; provides information and guidance on the proper selection, use and maintenance of respirators and contains requirements for establishing, implementing and evaluating respirator programs. Copies of ANSI Z88.2-2015 is readily available on ANSI's website at: <http://www.ansi.org>.

ANSI Z136.1-2014, Safe Use of Lasers. ANSI Z136.1-2014 is an industry accepted standard that provides guidance for the safe use of lasers and laser systems by defining control measures for each of seven laser hazard classifications. Copies of ANSI Z136.1-2014 is readily available on ANSI's website at: <http://www.ansi.org>.

DOE also incorporates by reference the following specific industry standards for pressure piping codes published by the American Society for Mechanical Engineers (ASME):

ASME Boiler and Pressure Vessel Code (BPVC)-2015. ASME's BPVC standard establishes rules of safety relating only to pressure integrity — governing the design, fabrication, and inspection of boilers and pressure vessels, and nuclear power plant components during construction. The objective of the rules is to provide a margin for deterioration in service. The Code Cases clarify the existing requirements or provide, when the need is urgent, rules for materials or constructions not covered by existing BPVC rules.

ASME BPVC.I-2015, *Section I-Rules for Construction of Power Boilers*. This section provides requirements for all methods of construction of power, electric, and miniature boilers; high temperature water boilers, heat recovery steam generators, and certain fired pressure vessels to be used in stationary service; and power boilers used in locomotive, portable, and traction service. Rules pertaining to use of the V, A, M, PP, S and E ASME Product Certification Marks are also included. The rules are applicable to boilers in which steam or other vapor is generated at a pressures exceeding 15 psig, and high temperature water boilers intended for operation at pressures exceeding 160 psig and/or temperatures exceeding 250 degree F. Super heaters, economizers, and other pressure parts connected directly to the boiler without intervening valves are considered as part of the scope of Section I.

ASME BPVC.II.A-2015, *Section II-Materials, Part A-Ferrous Material Specifications (Beginning to SA-450)*. This section is a “Service Section” to the other BPVC Sections, providing material specifications for ferrous materials adequate for safety in the field of pressure equipment. These specifications contain requirements for chemical and mechanical properties, heat treatment, manufacture, heat and product analyses, and methods of testing. They are designated by SA numbers and are identical with or similar to those of specifications published by American Society for Testing and Materials (ASTM) and other recognized national or international organizations.

ASME BPVC.II.A-2015, *Section II-Materials, Part A-Ferrous Material Specifications (SA-451 to End)*. This section is a “Service Section” to the other BPVC Sections, providing material specifications for ferrous materials adequate for safety in the field of pressure equipment. These

specifications contain requirements for chemical and mechanical properties, heat treatment, manufacture, heat and product analyses, and methods of testing. They are designated by SA numbers and are identical with or similar to those of specifications published by ASTM and other recognized national or international organizations.

ASME BPVC.II.B-2015, *Section II-Materials, Part B-Nonferrous Material Specifications*.

This section is a “Service Section” to the other BPVC Sections, providing material specifications for ferrous materials adequate for safety in the field of pressure equipment. These specifications contain requirements for chemical and mechanical properties, heat treatment, manufacture, heat and product analyses, and methods of testing. They are designated by SB numbers and are identical with or similar to those of specifications published by ASTM and other recognized national or international organizations.

ASME BPVC.II.C-2015, *Section II-Materials, Part C-Specification for Welding Rods, Electrodes, and Filler Metals*. This section is a “Service Section” to the other BPVC Sections providing material specifications for the manufacture, acceptability, chemical composition, mechanical usability, surfacing, testing requirements and procedures, operating characteristics, and intended uses for welding rods, electrodes and filler metals. These specifications are designated by SFA numbers and are derived from AWS specifications.

ASME BPVC.II.D.C-2015, *Section II-Materials, Part D-Properties (Customary)*. This section is a “Service Section” for reference by the BPVC construction Sections providing tables of material properties including allowable, design, tensile and yield stress values, physical

properties and external pressure charts and tables. Part D facilitates ready identification of materials to specific Sections of the BPVC. Part D contains appendices which contain criteria for establishing allowable stress, the bases for establishing external pressure charts, and information required for approval of new materials.

ASME BPVC.II.D.M-2015, *Section II-Materials, Part D- Properties (Metric)*. This section is a “Service Section” for reference by the BPVC construction Sections providing tables of material properties including allowable, design, tensile and yield stress values, physical properties and external pressure charts and tables. Part D facilitates ready identification of materials to specific Sections of the Boiler and Pressure Vessel Code. Part D contains appendices which contain criteria for establishing allowable stress, the bases for establishing external pressure charts, and information required for approval of new materials.

ASME BPVC.III.A-2015, *Section III-Rules for Construction of Nuclear Facility Components, Appendices*. This section contains appendices, both mandatory and nonmandatory for Section III, Division 1 (Subsection NCA through NG) and Division 2, including a listing of design and design analysis methods and information, and Data Report Forms. These appendices are referenced by and are an integral part of Subsection NCA through NG and Division 2.

ASME BPVC.III.1.NB-2015, *Section III-Rules for Construction of Nuclear Facility Components, Division I—Subsection NB, Class 1 Components*. This subsection contains requirements for the material, design, fabrication, examination, testing and overpressure

protection of items which are intended to conform to the requirements for Class 1 construction. The rules of Subsection NB cover the requirements for assuring the structural integrity of items.

ASME BPVC.III.1.NC-2015, *Section III-Rules for Construction of Nuclear Facility Components, Division I—Subsection NC, Class 2 Component*. This subsection contains requirements for the material, design, fabrication, examination, testing and overpressure protection of items which are intended to conform to the requirements for Class 2 construction. The rules of Subsection NC cover the requirements for assuring the structural integrity of items.

ASME BPVC.III.1.ND-2015, *Section III-Rules for Construction of Nuclear Facility Components, Division I—Subsection ND, Class 3 Components*. This subsection contains requirements for the material, design, fabrication, examination, testing and overpressure protection of items which are intended to conform to the requirements for Class 3 construction. The rules of Subsection ND cover the requirements for assuring the structural integrity of items.

ASME BPVC.III.1.NE-2015, *Section III-Rules for Construction of Nuclear Facility Components, Division I—Subsection NE, Class MC Components*. This subsection contains requirements for the material, design, fabrication, examination, testing and overpressure protection of items which are intended to conform to the requirements for Class MC construction. The rules of Subsection NE cover the requirements for assuring the structural integrity of items.

ASME BPVC.III.1.NF-2015, *Section III-Rules for Construction of Nuclear Facility Components, Division I—Subsection NF, Supports*. This subsection contains requirements for the material, design, fabrication, and examination of supports which are intended to conform to the requirements for Classes 1, 2, 3, and MC construction. Nuclear power plant supports for which rules are specified in this Subsection are those metal supports which are designed to transmit loads from the pressure retaining barrier of the component or piping to the load carrying building structure. In some cases there may be intervening elements in the component support load path which are not constructed to the rules of this Section, such as diesel engines, electric motors, valve operators, coolers, and access structures.

ASME BPVC.III.1.NG-2015, *Section III-Rules for Construction of Nuclear Facility Components, Division I—Subsection NG, Core Support Structures*. This subsection contains requirements for the material, design, fabrication, and examination required in the manufacture and installation of core support structures. Core support structures are those structures or parts of structures which are designed to provide direct support or restraint of the core (fuel & blanket assemblies) within the reactor pressure vessel.

ASME BPVC.III.1.NH-2015, *Section III-Rules for Construction of Nuclear Facility Components, Division I—Subsection NH, Class 1 Components in Elevated Temperature Service*. This subsection contains requirements for the material, design, fabrication, and examination required in the manufacture and installation of core support structures. Core support structures are those structures or parts of structures which are designed to provide direct support or restraint of the core (fuel & blanket assemblies) within the reactor pressure vessel.

ASME BPVC.III.NCA-2015, *Section III-Rules for Construction of Nuclear Facility Components, Subsection NCA, General Requirements for Division 1 and Division 2*. This subsection contains general requirements for manufacturers, fabricators, installers, designers, material manufacturers, material suppliers, and owners of nuclear power plants. This Subsection which is referenced by and is an integral part of Division 1, Subsections NB through NG, and Division 2 of Section III, covers quality assurance requirements, ASME Product Certification Marks, and authorized inspection for Class 1, 2, 3, MC, CS, and CC construction. Selective reference of ASME Standard NQA-1, Quality Assurance Program Requirements for Nuclear Facilities, is made in this Subsection.

ASME BPVC.III.2-2015, *Section III-Rules for Construction of Nuclear Facility Components, Division 2, Code for Concrete Containments*. This division contains requirements for the material, design, construction, fabrication, testing, examination, and overpressure protection of concrete containment structures, pre-stressed or reinforced. These requirements are applicable only to those components that are designed to provide a pressure retaining or containing barrier. They are not applicable to other support structures, except as they directly affect the components of the systems. This Section contains appendices, both mandatory and nonmandatory, for Division 2 construction.

ASME BPVC.III.3-2015, *Section III-Rules for Construction of Nuclear Facility Components, Division 3, Containment for Transportation and Storage of Spent Nuclear Fuels and High Level Radioactive Material and Waste*. This division contains requirements for the design and

construction of the containment system of a nuclear spent fuel or high level radioactive waste transport packaging.

ASME BPVC.III.5-2015, *Section III-Rules for Construction of Nuclear Facility Components, Division 5, High Temperature Reactors*. This division provides construction rules for high-temperature reactors, including both high-temperature, gas-cooled reactors (HTGRs) and liquid-metal reactors (LMRs). These rules are for components exceeding the temperature in Division 1 and are meant for components experiencing temperatures that are equal, to or higher than, 700°F (370°C) for ferritic materials or 800°F (425°C) for austenitic stainless steels or high nickel alloys. Division 5 also contains the new rules pertaining to graphite core components. These new rules include general requirements, plus design and construction rules, for graphite. Irradiation effects on graphite are addressed, as are the features of probabilistic design reflected in the determination of graphite material strength properties.

ASME BPVC.IV-2015, *Section IV, Rules for Construction of Heating Boilers*. This section provides requirements for design, fabrication, installation and inspection of steam heating, hot water heating, hot water supply boilers, and potable water heaters intended for low pressure service that are directly fired by oil, gas, electricity, coal or other solid or liquid fuels. It contains appendices which cover approval of new material, methods of checking safety valve and safety relief valve capacity, examples of methods of checking safety valve and safety relief valve capacity, examples of methods of calculation and computation, definitions relating to boiler design and welding, and quality control systems. Rules pertaining to use of the H, HV, and HLW ASME Product Certification Marks are also included.

ASME BPVC.V-2015, *Section V, Nondestructive Examination*. This section contains requirements and methods for nondestructive examination which are referenced and required by other BPVC Sections. It also includes manufacturer's examination responsibilities, duties of authorized inspectors and requirements for qualification of personnel, inspection and examination. Examination methods are intended to detect surface and internal discontinuities in materials, welds, and fabricated parts and components. A glossary of related terms is included.

ASME BPVC.VI-2015, *Section VI, Recommended Rules for the Care and Operation of Heating Boilers*. This section covers general descriptions, terminology and operation guidelines applicable to steel and cast iron boilers limited to the operating ranges of Section IV Heating Boilers. It includes guidelines for associated controls and automatic fuel burning equipment. Illustrations show typical examples of available equipment. Also included is a glossary of terms commonly associated with boilers, controls, and fuel burning equipment.

ASME BPVC.VII-2015, *Section VII, Recommended Guidelines for the Care of Power Boilers*. The purpose of these recommend guidelines is to promote safety in the use of power boilers. The term “power boiler” in this section includes stationary, portable, and traction type boilers, but does not include locomotive and high temperature water boilers, nuclear power plant boilers, heating boilers, pressure vessels, or marine boilers. This section provides such guidelines to assist those directly responsible for operating, maintaining, and inspecting power boilers. Emphasis has been placed on industrial type boilers because of their extensive use.

Guidelines are also provided for operation of auxiliary equipment and appliances that affect the safe and reliable operation of power boilers.

ASME BPVC.VIII.1-2015, *Section VIII-Rules for Construction of Pressure Vessels, Division*

1. This division provides requirements applicable to the design, fabrication, inspection, testing, and certification of pressure vessels operating at either internal or external pressures exceeding 15 psig. Such pressure vessels may be fired or unfired. Specific requirements apply to several classes of material used in pressure vessel construction, and also to fabrication methods such as welding, forging and brazing. It contains mandatory and nonmandatory appendices detailing supplementary design criteria, nondestructive examination and inspection acceptance standards. Rules pertaining to the use of the U, UM and UV ASME Product Certification Marks are also included.

ASME BPVC.VIII.2-2015, *Section VIII-Rules for Construction of Pressure Vessels, Division*

2, Alternative Rules. This division provides requirements applicable to the design, fabrication, inspection, testing, and certification of pressure vessels operating at either internal or external pressures exceeding 15 psig. Such vessels may be fired or unfired. This pressure may be obtained from an external source or by the application of heat from a direct or indirect source, or any combination thereof. These rules provide an alternative to the minimum requirements for pressure vessels under Division 1 rules. In comparison the Division 1, Division 2 requirements on materials, design, and nondestructive examination are more rigorous; however, higher design stress intensify values are permitted. Division 2 rules cover only vessels to be installed in a fixed location for a specific service where operation and maintenance control is retained during the

useful life of the vessel by the user who prepares or causes to be prepared the design specifications. These rules may also apply to human occupancy pressure vessels typically in the diving industry. Rules pertaining to the use of the U2 and UV ASME Product Certification Marks are also included.

ASME BPVC.VIII.3-2015, *Section VIII-Rules for Construction of Pressure Vessels, Division 3, Alternative Rules for Construction of High Pressure Vessels*. This division provides requirements applicable to the design, fabrication, inspection, testing, and certification of pressure vessels operating at either internal or external pressures generally above 10,000 psi. Such vessels may be fired or unfired. This pressure may be obtained from an external source, a process reaction, by the application of heat from a direct or indirect source, or any combination thereof. Division 3 rules cover vessels intended for a specific service and installed in a fixed location or relocated from work site to work site between pressurizations. The operation and maintenance control is retained during the useful life of the vessel by the user who prepares or causes to be prepared the design specifications. Division 3 does not establish maximum pressure limits for either Section VIII, Divisions 1 or 2, nor minimum pressure limits for this Division. Rules pertaining to the use of the UV3 ASME Product Certification Marks are also included.

ASME BPVC.IX-2015, *Section IX-Welding, Brazing and Fusing Qualifications, Qualification Standard for Welding, Brazing, and Fusing Procedures; Welders; Brazers; and Welding, Brazing, and Fusing Operators*. This section contains rules relating to the qualification of welding, brazing, and fusing procedures as required by other BPVC Sections for component manufacture. It also covers rules relating to the qualification and requalification of welders,

brazers, and welding, brazing and fusing machine operators in order that they may perform welding, brazing, or plastic fusing as required by other BPVC Sections in the manufacture of components. Welding, brazing, and fusing data cover essential and nonessential variables specific to the joining process used.

ASME BPVC.X-2015, *Section X, Fiber-Reinforced Plastic Pressure Vessels*. This section provides requirements for construction of an FRP pressure vessel in conformance with a manufacturer's design report. It includes production, processing, fabrication, inspection and testing methods required for the vessel. Section X includes three Classes of vessel design; Class I and Class III - qualification through the destructive test of a prototype and Class II - mandatory design rules and acceptance testing by nondestructive methods. These vessels are not permitted to store, handle or process lethal fluids. Vessel fabrication is limited to the following processes: bag-molding, centrifugal casting and filament-winding and contact molding. General specifications for the glass and resin materials and minimum physical properties for the composite materials are given.

ASME BPVC.XI-2015, *Section XI, Rules for Inservice Inspection of Nuclear Power Plant Components*. This section contains Division 1 and 3, in one volume and provides rules for the examination, inservice testing and inspection, and repair and replacement of components and systems in light water cooled and liquid metal cooled nuclear power plants. The Division 2 rules for inspection and testing of components of gas cooled nuclear power plants have been deleted in the 1995 Edition. With the decommissioning of the only gas cooled reactor to which these rules apply, there is no apparent need to continue publication of Division 2. Application of this

section of the code begins when the requirements of the Construction Code have been satisfied. The rules of this section constitute requirements to maintain the nuclear power plant while in operation and to return the plant to service, following plant outages, and repair or replacement activities. The rules require a mandatory program of scheduled examinations, testing, and inspections to evidence adequate safety. The method of nondestructive examination to be used and flaw size characterization are also contained within this section

ASME BPVC.XII-2015, *Section XII, Rules for Construction and Continued Service of Transport Tanks*. This section covers requirements for construction and continued service of pressure vessels for the transportation of dangerous goods via highway, rail, air or water at pressures from full vacuum to 3,000 psig and volumes greater than 120 gallons. "Construction" is an all-inclusive term comprising materials, design, fabrication, examination, inspection, testing, certification, and over-pressure protection. "Continued service" is an all-inclusive term referring to inspection, testing, repair, alteration, and recertification of a transport tank that has been in service. This section contains modal appendices containing requirements for vessels used in specific transport modes and service applications. Rules pertaining to the use of the T ASME Product Certification Marks are included.

ASME BPVC.CC.BPV-2015, *Code Cases, Boilers and Pressure Vessels*. This section provides the approved actions by the BPVC Committee on alternatives intended to allow early and urgent implementation of any revised requirements for boilers and pressure vessels.

ASME BPVC.CC.NC-2015, *Code Cases, Nuclear Components*. This section provides the approved actions by the BPVC Committee on alternatives intended to allow early and urgent implementation of any revised requirements for nuclear components.

Copies of the complete set of BPVC-2015 is readily available on ASME's website at:
<http://www.asme.org>.

B31.1–2016, *Power Piping*. B31.1–2016 prescribes minimum requirements for the design, materials, fabrication, erection, test, inspection, operation, and maintenance of piping systems typically found in electric power generating stations, industrial and institutional plants, geothermal heating systems, and central and district heating and cooling systems. It also covers boiler-external piping for power boilers and high temperature, high pressure water boilers in which steam or vapor is generated at a pressure of more than 15 psig; and high temperature water is generated at pressures exceeding 160 psig and/or temperatures exceeding 250 degrees Fahrenheit. Copies of B31.1–2016 is readily available on ASME's website at:
<http://www.asme.org>.

B31.3–2014, *Process Piping*. B31.3–2014 contains requirements for piping typically found in petroleum refineries, chemical, pharmaceutical, textile, paper, semiconductor, and cryogenic plants; and related processing plants and terminals. It covers materials and components, design, fabrication, assembly, erection, examination, inspection, and testing of piping. Copies of B31.3–2016 is readily available on ASME's website at: <http://www.asme.org>.

B31.4–2016, *Pipeline Transportation Systems for Liquids and Slurries*. B31.4–2016 prescribes requirements for the design, materials, construction, assembly, inspection, testing, operation, and maintenance of liquid pipeline systems between production fields or facilities, tank farms, above- or belowground storage facilities, natural gas processing plants, refineries, pump stations, ammonia plants, terminals (marine, rail, and truck), and other delivery and receiving points, as well as pipelines transporting liquids within pump stations, tank farms, and terminals associated with liquid pipeline systems. This Code also prescribes requirements for the design, materials, construction, assembly, inspection, testing, operation, and maintenance of piping transporting aqueous slurries of nonhazardous materials such as coal, mineral, ores, concentrates, and other solid materials, between a slurry processing plant or terminal and a receiving plant or terminal. Copies of B31.4–2016 is readily available on ASME’s website at: <http://www.asme.org>.

B31.5–2016, *Refrigeration Piping and Heat Transfer Components*. B31.5–2016 covers refrigerant, heat transfer components, and secondary coolant piping for temperatures as low as - 320 degrees Fahrenheit, whether erected on the premises or factory assembled. The standard also includes all connecting refrigerant and secondary coolant piping starting at the first joint adjacent to such apparatus. Copies of B31.5–2016 is readily available on ASME’s website at: <http://www.asme.org>.

B31.8–2016, *Gas Transmission and Distribution Piping Systems*. B31.8–2014 is the most widely used code for the design, operation, maintenance, and repair of natural gas distribution

and transmission pipelines. Copies of B31.8–2014 is readily available on ASME’s website at: <http://www.asme.org>.

B31.8S–2014, *Managing System Integrity of Gas Pipelines*. B31.8S–2014 covers on-shore, gas pipeline systems constructed with ferrous materials, including pipe, valves, appurtenances attached to pipe, compressor units, metering station, regulator stations, delivery stations, holders and fabricated assemblies. Its principles, processes and approaches apply to the entire system for all pipeline systems. Copies of B31.8S–2014 is readily available on ASME’s website at: <http://www.asme.org>.

B31.9–2014, *Building Services Piping*. B31.9–2014 provides rules for piping in industrial, institutional, commercial and public building, and multi-unit residences, which does not require the range of sizes, pressures, and temperatures covered in ASME’s B31.1 Codes for Power Piping. It includes piping systems either in the building or within the property limits. Copies of B31.9–2014 is readily available on ASME’s website at: <http://www.asme.org>.

B31G–2012, *Manual for Determining Remaining Strength of Corroded Pipelines*. B31G–2012 provides guidance in the evaluation of metal loss in pressurized pipeline and piping systems. The manual is applicable to all pipelines and piping systems that are part of ASME B31 Code for Pressure Piping. Copies of B31G–2012 is readily available on ASME’s website at: <http://www.asme.org>.

DOE incorporates by reference the following specific consensus standards for building codes published by National Fire Protection Association (NFPA):

NFPA 70 (2017), *National Electric Code*. NFPA 70 covers the requirements on electrical wiring and equipment installation issues, including minimum provisions for the use of connections, voltage markings, conductors, and cables. Chapters address specific circumstances surrounding special occupancies and industrial equipment and machines. It also contains specific details on the safe installation and use of communications and signaling conductors. Copies of NFPA 70 (2017), is readily available on NFPA’s website at: <http://catalog.nfpa.org>.

NFPA 70E (2015), *Standard for Electrical Safety in the Workplace*. NFPA 70E (2015) is an industry accepted standard that encompass safety-related work practices, safety-related maintenance requirements, and safety requirements for special equipment. The standard includes guidance for making hazard identification and risk assessments, selecting appropriate personal protective equipment, establishing an electrically safe work condition, and employee training. Copies of NFPA 70E (2015), is readily available on NFPA’s website at: <http://catalog.nfpa.org>.

III. Procedural Requirements

A. Review Under Executive Order 12866

This regulatory action has been determined not to be “a significant regulatory action” under Executive Order 12866, “Regulatory Planning and Review,” 58 FR 51735 (October 4, 1993).

Accordingly, this action was not subject to review under that Executive Order by the Office of Information and Regulatory Affairs (OIRA) of the Office of Management and Budget (OMB).

B. Review Under the Regulatory Flexibility Act.

The Regulatory Flexibility Act (5 U.S.C. 601 *et seq.*) requires preparation of an initial regulatory flexibility analysis for any rule that by law must be proposed for public comment, unless the agency certifies that the rule, if promulgated, will not have a significant economic impact on a substantial number of small entities. As required by Executive Order 13272, “Proper Consideration of Small Entities in Agency Rulemaking,” 67 FR 53461 (August 16, 2002), DOE published procedures and policies to ensure that the potential impacts of its draft rules on small entities are properly considered during the rulemaking process (68 FR 7990, February 19, 2003), and has made them available on the Office of General Counsel’s Web site: <http://energy.gov/gc/office-general-counsel>.

The regulatory amendments in this notice of final rulemaking reflect technical amendments, and clarify DOE’s intent to continue to later versions of specific safety and health standards. Rights and obligations under 10 CFR part 851 are unaltered and as such, are not subject to the requirement for a general notice of proposed rulemaking under the Administrative Procedure Act (5 U.S.C. 553(a)(2)) (APA). There is no requirement under the APA or any other law that this rule be proposed for public comment. Consequently, this rulemaking is exempt from the requirements of the Regulatory Flexibility Act.

C. Review Under the Paperwork Reduction Act

This final rule does not impose a collection of information requirement subject to the Paperwork Reduction Act (44 U.S.C. 3501 *et seq.*).

D. Review Under the National Environmental Policy Act

DOE has concluded that promulgation of this rule falls into a class of actions that would not individually or cumulatively have a significant impact on the human environment, as determined by DOE's regulations implementing the National Environmental Policy Act of 1969 (42 U.S.C. 4321 *et seq.*). Specifically, this rule amends existing regulations without changing the environmental effect of the regulations being amended, and, therefore, is covered under the Categorical Exclusion in paragraph A5 of Appendix A to subpart D, 10 CFR part 1021. Accordingly, neither an environmental assessment nor an environmental impact statement is required.

E. Review Under Executive Order 12988

With respect to the review of existing regulations and the promulgation of new regulations, section 3(a) of Executive Order 12988, "Civil Justice Reform" (61 FR 4729, February 7, 1996), imposes on Federal agencies the general duty to adhere to the following requirements: (1) Eliminate drafting errors and ambiguity; (2) write regulations to minimize litigation; and (3) provide a clear legal standard for affected conduct rather than a general standard and promote simplification and burden reduction. Section 3(b)(2) of Executive Order 12988 specifically requires that Executive agencies make every reasonable effort to ensure that the regulation: (1) Clearly specifies the preemptive effect, if any, to be given to the regulation; (2) clearly specifies any effect on existing Federal law or regulation; (3) provides a clear legal standard for affected

conduct while promoting simplification and burden reduction; (4) specifies the retroactive effect, if any, to be given to the regulation; (5) defines key terms; and (6) addresses other important issues affecting clarity and general draftsmanship under any guidelines issued by the Attorney General. Section 3(c) of Executive Order 12988 requires Executive agencies to review regulations in light of applicable standards in section 3(a) and section 3(b) to determine whether they are met or it is unreasonable to meet one or more of them. DOE has completed the required review and determined that, to the extent permitted by law, this final rule meets the relevant standards of Executive Order 12988.

F. Review Under Executive Order 13132

Executive Order 13132, “Federalism,” 64 FR 43255 (August 10, 1999) imposes certain requirements on agencies formulating and implementing policies or regulations that preempt State law or that have federalism implications. Agencies are required to examine the constitutional and statutory authority supporting any action that would limit the policymaking discretion of the States and carefully assess the necessity for such actions. The Executive Order also requires agencies to have an accountable process to ensure meaningful and timely input by State and local officials in the development of regulatory policies that have federalism implications. On March 14, 2000, DOE published a statement of policy describing the intergovernmental consultation process it will follow in the development of such regulations (65 FR 13735). DOE has examined this rule and has determined that it does not preempt State law and does not have a substantial direct effect on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government. No further action is required by Executive Order 13132.

G. Review Under the Unfunded Mandates Reform Act of 1995

Title II of the Unfunded Mandates Reform Act of 1995 (Public Law 104–4) requires each Federal agency to assess the effects of a Federal regulatory action on State, local, and tribal governments, and the private sector. DOE has determined that this regulatory action does not impose a Federal mandate on State, local or tribal governments or on the private sector.

H. Review Under Executive Order 13211

Executive Order 13211, “Actions Concerning Regulations That Significantly Affect Energy Supply, Distribution, or Use,” 66 FR 28355 (May 22, 2001) requires Federal agencies to prepare and submit to the OIRA, which is part of OMB, a Statement of Energy Effects for any proposed significant energy action. A “significant energy action” is defined as any action by an agency that promulgates or is expected to lead to promulgation of a final rule, and that: (1) Is a significant regulatory action under Executive Order 12866, or any successor order; and is likely to have a significant adverse effect on the supply, distribution, or use of energy, or (2) is designated by the Administrator of OIRA as a significant energy action. For any proposed significant energy action, the agency must give a detailed statement of any adverse effects on energy supply, distribution, or use should the proposal be implemented, and of reasonable alternatives to the action and their expected benefits on energy supply, distribution, and use. This regulatory action is not a significant energy action. Accordingly, DOE has not prepared a Statement of Energy Effects.

I. Review Under the Treasury and General Government Appropriations Act, 1999

Section 654 of the Treasury and General Government Appropriations Act, 1999 (Public Law 105–277) requires Federal agencies to issue a Family Policymaking Assessment for any rule that may affect family well-being. This rule would not have any impact on the autonomy or integrity of the family as an institution. Accordingly, DOE has concluded that it is not necessary to prepare a Family Policymaking Assessment

J. Review Under the Treasury and General Government Appropriations Act, 2001

The Treasury and General Government Appropriations Act, 2001 (44 U.S.C. 3516, note) provides for agencies to review most disseminations of information to the public under guidelines established by each agency pursuant to general guidelines issued by OMB. OMB’s guidelines were published at 67 FR 8452 (February 22, 2002), and DOE’s guidelines were published at 67 FR 62446 (October 7, 2002). DOE has reviewed this final rule under the OMB and DOE guidelines and has concluded that it is consistent with applicable policies in those guidelines.

K. Administrative Procedure Act

An agency may find good cause to exempt a rule from the requirement for a notice of proposed rulemaking and the opportunity for public comment under the APA if the requirement is determined to be unnecessary, impracticable, or contrary to the public interest under 5 U.S.C. 533(b)(3)(B). The rule updates the industry safety and health standards incorporated by reference in 10 CFR part 851. The updates are strictly technical amendments. Consequently, good cause exists for issuing this amendment as a final rule as notice and comment is unnecessary.

L. Congressional Notification

As required by 5 U.S.C. 801, DOE will submit to Congress a report regarding the issuance of this final rule prior to the effective date set forth at the outset of this rulemaking. The report will state that it has been determined that the rule is not a “major rule” as defined by 5 U.S.C. 801(2).

V. Approval of the Office of the Secretary

The Secretary of Energy has approved publication of this final rule.

List of Subjects in 10 CFR Part 851

Civil penalty, Federal buildings and facilities, Incorporation by reference, Occupational safety and health, Reporting and recordkeeping requirements, Safety.

Issued in Washington, DC, on December 12, 2017.

Matthew B. Moury
Associate Under Secretary for
Environment, Health, Safety and Security

For the reasons set forth in the preamble, the Department of Energy amends part 851 of chapter III of title 10 of the Code of Federal Regulations as set forth below:

PART 851—WORKER SAFETY AND HEALTH PROGRAM

1. The authority citation for part 851 continues to read as follows:

Authority: 42 U.S.C. 2201(i)(3), (p); 42 U.S.C. 2282c; 42 U.S.C. 5801 *et seq.*; 42 U.S.C. 7101 *et seq.*; 50 U.S.C. 2401 *et seq.*

2. Section 851.23 is amended by:

- a. Removing in paragraph (a)(2), “1904.44,”;
- b. Revising paragraphs (a)(9) and (10);
- c. Removing in paragraph (a)(11), “(2000)”, and adding in its place “(2014)”;
- d. Removing in paragraph (a)(12), “(1999)”, and adding in its place “(2012)”;
- e. Removing in paragraph (a)(13), “(2005)”, and adding in its place “(2017)”;
- f. Removing in paragraph (a)(14), “(2004)”, and adding in its place “(2015)”;

The revisions read as follows:

§ 851.23 Safety and health standards.

(a) * * *

(9) American Conference of Governmental Industrial Hygienists (ACGIH[®]), “Threshold Limit Values for Chemical Substances and Physical Agents and Biological Exposure Indices,” (2016) (incorporated by reference, see § 851.27) when the ACGIH[®] Threshold Limit Values (TLVs) are lower (more protective) than permissible exposure limits in 29 CFR part 1910 for

general industry and/or part 1926 for construction. When the ACGIH TLVs are used as exposure limits, contractors must nonetheless comply with the other provisions of any applicable expanded health standard found in 29 CFR part 1910 and/or part 1926.

(10) American National Standards Institute (ANSI/ASSE) Z88.2, “American National Standard Practices for Respiratory Protection,” (2015) (incorporated by reference, see §851.27).

* * * * *

§ 851.26 [Amended]

3. Section 851.26 is amended:

a. In paragraph (a)(2) by removing “DOE Manual 231.1-1A, Environment, Safety and Health Reporting Manual, September 9, 2004 (incorporated by reference, see § 851.27)” and adding in its place “DOE reporting directives.”;

b. In paragraph (a)(3) by removing “in DOE Manual 231.1-1A.” and adding in its place “by DOE.”; and

c. In paragraph (b)(2) by removing “(reference DOE Order 225.1A, Accident Investigations, November 26, 1997)”.

4. Section 851.27 is revised to read as follows:

§ 851.27 Materials incorporated by reference.

(a) *General.* We incorporate by reference the following standards into part 851. The material has been approved for incorporation by the Director of the *Federal Register* under 5 U.S.C. 552(a) and 1 CFR part 51. Any subsequent amendment to a standard by the standard-

setting organization will not affect the DOE regulations unless and until amended by DOE. Material is incorporated as it exists on the date of the approval. To use a subsequent amendment to a standard, DOE must publish a document in the *Federal Register* and the material must be available to the public. All approved material is available for inspection at the U.S. Department of Energy, Office of Environment, Health, Safety and Security, Office of Worker Safety and Health Policy, 1000 Independence Ave., SW, Washington, DC 20585. 301-903-6061. The material is available for inspection at the National Archives and Records Administration (NARA). For information on the availability of this material at NARA, call 202-741-6030 or go to: www.archives.gov/federal-register/cfr/ibr-locations.html. Standards can be obtained from the sources listed below.

(b) *ACGIH*[®]. American Conference of Governmental Industrial Hygienist, 1330 Kemper Meadow Drive, Cincinnati, OH 45240. Telephone number: 513-742-2020, or go to: <http://www.acgih.org>.

(1) *ACGIH*[®], *Threshold Limit Values for Chemical Substances and Physical Agents and Biological Exposure Indices*, 2016; IBR approved for § 851.23.

(2) Reserved.

(c) *ANSI*. American National Standards Institute, 1899 L Street, NW, 11th Floor, Washington, DC 20036. Telephone number: 202-293-8020, or go to: <http://www.ansi.org>.

(1) ANSI Z49.1-2012, *American National Standard Safety in Welding, Cutting and Allied Processes*, sections 4.3 and E4.3, ANSI approved March 9, 2012, IBR approved for § 851.23.

(2) ANSI/ASSE Z88.2-2015, *American National Standard Practices for Respiratory Protection*, ANSI approved March 4, 2015, IBR approved for § 851.23.

(3) ANSI Z136.1-2014, *American National Standard for Safe Use of Lasers*, ANSI approved December 10, 2013, IBR approved for § 851.23.

(d) ASME. American Society of Mechanical Engineers, P.O. Box 2300, Fairfield, NJ 07007. Telephone: 800-843-2763, or got to: <http://www.asme.org>.

(1) ASME Boilers and Pressure Vessel Codes (BPVC) as follows:

(i) BPVC.I-2015, *Section I-Rules for Construction of Power Boilers*, 2015 edition, issued July 1, 2015; IBR approved for appendix A, section 4, Pressure Safety;

(ii) BPVC.II.A-2015, *Section II-Materials, Part A-Ferrous Material Specifications (Beginning to SA-450)*, 2015 edition, issued July 1, 2015; IBR approved for appendix A, section 4, Pressure Safety;

(iii) BPVC.II.A-2015, *Section II-Materials, Part A-Ferrous Material Specifications (SA-451 to End)*, 2015 edition, issued July 1, 2015; IBR approved for appendix A, section 4, Pressure Safety;

(iv) BPVC.II.B-2015, *Section II-Materials, Part B-Nonferrous Material Specifications*, 2015 edition, issued July 1, 2015; IBR approved for appendix A, section 4, Pressure Safety;

(v) BPVC.II.C-2015, *Section II-Materials, Part C-Specification for Welding Rods; Electrodes, and Filler Metals*; 2015 edition, issued July 1, 2015; IBR approved for appendix A, section 4, Pressure Safety;

(vi) BPVC.II.D.C-2015, *Section II-Materials, Part D-Properties (Customary)*; 2015 edition, issued July 1, 2015; IBR approved for appendix A, section 4, Pressure Safety

(vii) BPVC.II.D.M-2015, *Section II-Materials, Part D- Properties (Metric)*; 2015 edition, issued July 1, 2015; IBR approved for appendix A, section 4, Pressure Safety;

(viii) BPVC.III.A-2015, *Section III-Rules for Construction of Nuclear Facility Components, Appendices*; 2015 edition, issued July 1, 2015; IBR approved for appendix A, section 4, Pressure Safety;

(ix) BPVC.III.1.NB-2015, *Section III-Rules for Construction of Nuclear Facility Components, Division I—Subsection NB, Class 1 Components*; 2015 edition, issued July 1, 2015; IBR approved for appendix A, section 4, Pressure Safety;

(x) BPVC.III.1.NC-2015, *Section III-Rules for Construction of Nuclear Facility Components, Division I—Subsection NC, Class 2 Components*; 2015 edition, issued July 1, 2015; IBR approved for appendix A, section 4, Pressure Safety;

(xi) BPVC.III.1.ND-2015, *Section III-Rules for Construction of Nuclear Facility Components, Division I—Subsection ND, Class 3 Components*; 2015 edition, issued July 1, 2015; IBR approved for appendix A, section 4, Pressure Safety;

(xii) BPVC.III.1.NE-2015, *Section III-Rules for Construction of Nuclear Facility Components, Division I—Subsection NE, Class MC Components*; 2015 edition, issued July 1, 2015; IBR approved for appendix A, section 4, Pressure Safety;

(xiii) BPVC.III.1.NF-2015, *Section III-Rules for Construction of Nuclear Facility Components, Division I—Subsection NF, Supports*; 2015 edition, issued July 1, 2015; IBR approved for appendix A, section 4, Pressure Safety;

(xiv) BPVC.III.1.NG-2015, *Section III-Rules for Construction of Nuclear Facility Components, Division I—Subsection NG, Core Support Structures*; 2015 edition, issued July 1, 2015; IBR approved for appendix A, section 4, Pressure Safety;

- (xv) BPVC.III.1.NH-2015, *Section III-Rules for Construction of Nuclear Facility Components, Division I—Subsection NH, Class 1 Components in Elevated Temperature Service*; 2015 edition, issued July 1, 2015; IBR approved for appendix A, section 4, Pressure Safety;
- (xvi) BPVC.III.NCA-2015, *Section III-Rules for Construction of Nuclear Facility Components, Subsection NCA, General Requirements for Division 1 and Division 2*; 2015 edition, issued July 1, 2015; IBR approved for appendix A, section 4, Pressure Safety;
- (xvii) BPVC.III.2-2015, *Section III-Rules for Construction of Nuclear Facility Components, Division 2, Code for Concrete Containments*; 2015 edition, issued July 1, 2015; IBR approved for appendix A, section 4, Pressure Safety;
- (xviii) BPVC.III.3-2015, *Section III-Rules for Construction of Nuclear Facility Components, Division 3, Containments for Transportation and Storage of Spent Nuclear Fuel and High Level Radioactive Material and Waste*; 2015 edition, issued July 1, 2015; IBR approved for appendix A, section 4, Pressure Safety;
- (xix)) BPVC.III.5-2015, *Section III-Rules for Construction of Nuclear Facility Components, Division 5, High Temperature Reactors*; 2015 edition, issued July 1, 2015; IBR approved for appendix A, section 4, Pressure Safety;
- (xx) BPVC.IV-2015, *Section IV, Rules for Construction of Heating Boilers*; 2015 edition, issued July 1, 2015; IBR approved for appendix A, section 4, Pressure Safety;
- (xxi) BPVC.V-2015, *Section V, Nondestructive Examination*; 2015 edition, issued July 1, 2015; IBR approved for appendix A, section 4, Pressure Safety;
- (xxii) BPVC.VI-2015, *Section VI, Recommended Rules for the Care and Operation of Heating Boilers*; 2015 edition, issued July 1, 2015; IBR approved for appendix A, section 4, Pressure Safety;

(xxiii) BPVC.VII-2015, *Section VII, Recommended Guidelines for the Care of Power Boilers*; 2015 edition, issued July 1, 2015; IBR approved for appendix A, section 4, Pressure Safety;

(xxiv) BPVC.VIII.1-2015, *Section VIII-Rules for Construction of Pressure Vessels, Division 1*; 2015 edition, issued July 1, 2015; IBR approved for appendix A, section 4, Pressure Safety;

(xxv) BPVC.VIII.2-2015, *Section VIII-Rules for Construction of Pressure Vessels, Division 2, Alternative Rules*; 2015 edition, issued July 1, 2015; IBR approved for appendix A, section 4, Pressure Safety;

(xxvi) BPVC.VIII.3-2015, *Section VIII-Rules for Construction of Pressure Vessels, Division 3, Alternative Rules for Construction of High Pressure Vessels*; 2015 edition, issued July 1, 2015; IBR approved for appendix A, section 4, Pressure Safety;

(xxvii) BPVC.IX-2015, *Section IX-Welding, Brazing and Fusing Qualifications, Qualification Standard for Welding, Brazing, and Fusing Procedures; Welders; Brazers; and Welding, Brazing, and Fusing Operators*; 2015 edition, issued July 1, 2015; IBR approved for appendix A, section 4, Pressure Safety;

(xxviii) BPVC.X-2015, *Section X, Fiber-Reinforced Plastic Pressure Vessels*; 2015 edition, issued July 1, 2015; IBR approved for appendix A, section 4, Pressure Safety;

(xxix) BPVC.XI-2015, *Section XI, Rules for Inservice Inspection of Nuclear Power Plant Components*; 2015 edition, issued July 1, 2015; IBR approved for appendix A, section 4, Pressure Safety;

(xxx) BPVC.XII-2015, *Section XII, Rules for Construction and Continued Service of Transport Tanks*; issued July 1, 2015; IBR approved for appendix A, section 4, Pressure Safety;

(xxxix) BPVC.CC.BPV-2015, *Code Cases, Boilers and Pressure Vessels*; 2015 edition, issued July 1, 2015; IBR approved for appendix A, section 4, Pressure Safety; and

(xxxii) BPVC.CC.NC-2015, *Code Cases, Nuclear Components*; issued July 1, 2015, IBR approved for appendix A, section 4, Pressure Safety.

(2) ASME B31 codes for pressure piping as follows:

(i) B31.1–2016, *Power Piping, ASME Code for Pressure Piping, B31*, issued June 30, 2016; IBR approved for appendix A, Section 4, Pressure Safety;

(ii) B31.3–2014, *Process Piping, ASME Code for Pressure Piping, B31*, issued February 27, 2015; IBR approved for appendix A, Section 4, Pressure Safety;

(iii) B31.4–2016, *Pipeline Transportation Systems for Liquids and Slurries, ASME Code for Pressure Piping, B31*, issued March 31, 2016; IBR approved for appendix A, Section 4, Pressure Safety;

(iv) B31.5–2016, *Refrigeration Piping and Heat Transfer Components, ASME Code for Pressure Piping, B31*, issued June 29, 2016; IBR approved for appendix A, Section 4, Pressure Safety;

(v) B31.8-2016, *Gas Transmission and Distribution Piping Systems, ASME Code for Pressure Piping, B31*, issued September 30, 2014; IBR approved for appendix A, Section 4, Pressure Safety;

(vi) B31.8S–2014, *Managing System Integrity of Gas Pipelines, ASME Code for Pressure Piping, B31, Supplement to ASME B31.8*, issued September 30, 2014; IBR approved for appendix A, Section 4, Pressure Safety;

(vii) B31.9–2014, *Building Services Piping, ASME Code for Pressure Piping, B31*, issued April 28, 2014; IBR approved for appendix A, Section 4, Pressure Safety; and

(viii) B31G–2012, *Manual for Determining the Remaining Strength of Corroded Pipelines, Supplement to ASME B31 Code for Pressure Piping*, issued October 24, 2012; IBR approved for appendix A, Section 4, Pressure Safety.

(e) NFPA. The National Fire Protection Association, One Batterymarch Park, Quincy, MA 02169. Telephone: 617-984-7423, or go to: <http://www.nfpa.org>.

(1) NFPA 70, *National Electric Code*, (2017), issued August 4, 2016; IBR approved for § 851.23; and

(2) NFPA 70E, *Standard for Electrical Safety in the Workplace*, (2015 edition), issued July 14, 2014; IBR approved for § 851.23.

5. Appendix A to part 851 is amended:

- a. In section 3, Explosives Safety, by revising paragraph (b);
- b. In section 4, Pressure Safety, by revising paragraphs (b)(1) and (2); and
- c. In section 6, Industrial Hygiene, by revising paragraph (f).

The revisions read as follows:

Appendix A to Part 851—Worker Safety and Health Functional Areas

* * * * *

3. EXPLOSIVES SAFETY

* * * * *

(b) Contractors must comply with the policy and requirements specified in the appropriate explosives safety technical standard.

* * * * *

4. PRESSURE SAFETY

* * * * *

(b) * * *

(1) The applicable American Society of Mechanical Engineers (ASME) boilers and pressure vessel codes (BPVC), including applicable code cases as indicated in paragraphs (b)(1)(i) through (xxxii) of this section:

(i) BPVC.I-2015, *Section I-Rules for Construction of Power Boilers* (incorporated by reference, see § 851.27);

(ii) BPVC.II.A-2015, *Section II-Materials, Part A-Ferrous Material Specifications (Beginning to SA-450)* (incorporated by reference, see § 851.27);

(iii) BPVC.II.A-2015, *Section II-Materials, Part A-Ferrous Material Specifications (SA-451 to End)* (incorporated by reference, see § 851.27);

(iv) BPVC.II.B-2015, *Section II-Materials, Part B-Nonferrous Material Specifications* (incorporated by reference, see § 851.27);

(v) BPVC.II.C-2015, *Section II-Materials, Part C-Specification for Welding Rods; Electrodes, and Filler Metals* (incorporated by reference, see § 851.27);

(vi) BPVC.II.D.C-2015, *Section II-Materials, Part D-Properties (Customary)* (incorporated by reference, see § 851.27);

(vii) BPVC.II.D.M-2015, *Section II-Materials, Part D- Properties (Metric)* (incorporated by reference, see § 851.27);

(viii) BPVC.III.A-2015, *Section III-Rules for Construction of Nuclear Facility Components, Appendices* (incorporated by reference, see § 851.27);

(ix) BPVC.III.1.NB-2015, *Section III-Rules for Construction of Nuclear Facility Components, Division I—Subsection NB, Class 1 Components* (incorporated by reference, see § 851.27);

(x) BPVC.III.1.NC-2015, *Section III-Rules for Construction of Nuclear Facility Components, Division I—Subsection NC, Class 2 Components* (incorporated by reference, see § 851.27);

(xi) BPVC.III.1.ND-2015, *Section III-Rules for Construction of Nuclear Facility Components, Division I—Subsection ND, Class 3 Components* (incorporated by reference, see § 851.27);

(xii) BPVC.III.1.NE-2015, *Section III-Rules for Construction of Nuclear Facility Components, Division I—Subsection NE, Class MC Components* (incorporated by reference, see § 851.27);

(xiii) BPVC.III.1.NF-2015, *Section III-Rules for Construction of Nuclear Facility Components, Division I—Subsection NF, Supports* (incorporated by reference, see § 851.27);

(xiv) BPVC.III.1.NG-2015, *Section III-Rules for Construction of Nuclear Facility Components, Division I—Subsection NG, Core Support Structures* (incorporated by reference, see § 851.27);

(xv) BPVC.III.1.NH-2015, *Section III-Rules for Construction of Nuclear Facility Components, Division I—Subsection NH, Class 1 Components in Elevated Temperature Service* (incorporated by reference, see § 851.27);

(xvi) BPVC.III.NCA-2015, *Section III-Rules for Construction of Nuclear Facility; Components, Subsection NCA, General Requirements for Division 1 and Division 2* (incorporated by reference, see § 851.27);

(xvii) BPVC.III.2-2015, *Section III-Rules for Construction of Nuclear Facility Components, Division 2, Code for Concrete Containments* (incorporated by reference, see § 851.27);

(xviii) BPVC.III.3-2015, *Section III-Rules for Construction of Nuclear Facility Components, Division 3, Containment for Transportation and Storage of Spent Nuclear Fuel and High Level Radioactive Material and Waste* (incorporated by reference, see § 851.27);

(xix)) BPVC.III.5-2015, *Section III-Rules for Construction of Nuclear Facility Components, Division 5, High Temperature Reactors* (incorporated by reference, see § 851.27);

(xx) BPVC.IV-2015, *Section IV, Rules for Construction of Heating Boilers* (incorporated by reference, see § 851.27);

(xxi) BPVC.V-2015, *Section V, Nondestructive Examination* (incorporated by reference, see § 851.27);

(xxii) BPVC.VI-2015, *Section VI, Recommended Rules for the Care and Operation of Heating Boilers* (incorporated by reference, see § 851.27);

(xxiii) BPVC.VII-2015, *Section VII, Recommended Guidelines for the Care of Power Boilers* (incorporated by reference, see § 851.27);

(xxiv) BPVC.VIII.1-2015, *Section VIII-Rules for Construction of Pressure Vessels, Division 1* (incorporated by reference, see § 851.27);

(xxv) BPVC.VIII.2-2015, *Section VIII-Rules for Construction of Pressure Vessels, Division 2, Alternative Rules* (incorporated by reference, see § 851.27);

(xxvi) BPVC.VIII.3-2015, *Section VIII-Rules for Construction of Pressure Vessels, Division 3, Alternative Rules for Construction of High Pressure Vessels* (incorporated by reference, see § 851.27);

(xxvii) BPVC.IX-2015, *Section IX-Welding, Brazing and Fusing Qualifications, Qualification Standard for Welding, Brazing, and Fusing Procedures; Welders; Brazers; and Welding, Brazing, and Fusing Operators* (incorporated by reference, see § 851.27);

(xxviii) BPVC.X-2015, *Section X, Fiber-Reinforced Plastic Pressure Vessels* (incorporated by reference, see § 851.27);

(xxix) BPVC.XI-2015, *Section XI, Rules for Inservice Inspection of Nuclear Power Plant Components* (incorporated by reference, see § 851.27);

(xxx) BPVC.XII-2015, *Section XII, Rules for Construction and Continued Service of Transport Tanks* (incorporated by reference, see § 851.27);

(xxxi) BPVC.CC.BPV-2015, *Code Cases, Boilers and Pressure Vessels* (incorporated by reference, see § 851.27); and

(xxxii) BPVC.CC.NC-2015, *Code Cases, Nuclear Components* (incorporated by reference, see § 851.27).

(2) The applicable ASME B31 code for pressure piping as indicated in this paragraph; and or as indicated in paragraph (b)(3) of this section:

(i) B31.1–2016, *Power Piping* (incorporated by reference, see § 851.27);

(ii) B31.3–2014, *Process Piping* (incorporated by reference, see § 851.27);

(iii) B31.4–2016, *Pipeline Transportation Systems for Liquids and Slurries* (incorporated by reference, see § 851.27);

(iv) B31.5–2016, *Refrigeration Piping and Heat Transfer Components* (incorporated by reference, see § 851.27);

(v) B31.8–2016, *Gas Transmission and Distribution Piping Systems* (incorporated by reference, see § 851.27);

(vi) B31.8S–2014, *Managing System Integrity of Gas Pipelines* (incorporated by reference, see § 851.27);

(vii) B31.9–2014, *Building Services Piping* (incorporated by reference, see § 851.27); and

(viii) B31G–2012, *Manual for Determining the Remaining Strength of Corroded Pipelines* (incorporated by reference, see § 851.27).

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6. INDUSTRIAL HYGIENE

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(f) Use of respiratory protection equipment tested under the DOE Respirator Acceptance Program for Supplied-Air Suits when the National Institute for Occupational Safety and Health-approved respiratory protection does not exist for DOE tasks that require such equipment. For security operations military type masks for respiratory protection by security personnel is acceptable.

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